

# YIN (IRENE) LIN

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## EDUCATION

### Shanghai Jiao Tong University (SJTU)

*B.S. in Computer Science, Department of Computer Science*

Major GPA: **90.34**/100 (3.82/4.0) Cumulative GPA: **89.38**/100 (3.76/4.0)

Shanghai, China

Sept. 2015 – June 2019 (Expected)

### University of Waterloo

*Research Intern in Software Architecture Group (Advisor: [Prof. Meiyappan Nagappan](#))*

Ontario, Canada

July 2018 – Oct. 2018

**GRE:** 325+4.0 (V:157, Q:168, AW:4.0) **TOEFL:** 108 (R:28, L:30, S:22, W:28)

## PUBLICATIONS

[1] **Yin Lin**, Xinyi Chen, Xiaofeng Gao, Bin Yao, Guihai Chen, *R<sup>2</sup>-Tree: An Efficient Indexing Scheme for Data Center Networks*, in *the 29th International Conference on Database and Expert Systems Applications (DEXA)*, 2018 (Oral, Acceptance Rate 21.88%, 35/160).

[2] **Yin Lin**, Xinyi Chen, Paulo Weng, Xiaofeng Gao, Guihai Chen, *MetisRL: A Reinforcement Learning Approach for Dynamic Routing in Data Center Networks*, prepare to submit to IEEE ICDCS, 2019.

[3] **Yin Lin**, Meiyappan Nagappan, *Analyzing development tools in ICSE 2014-2018*, in preparation.

## RESEARCH EXPERIENCES

### Scalable R-Tree based Indexing for Server-Centric Cloud Storage Systems

Dec. 2016 – Feb. 2018

*Shanghai Jiao Tong University – Advisor: [Prof. Xiaofeng Gao](#)*

- Proposed a scalable R-Tree based indexing scheme for high dimensional data in data centers. Utilized R-Tree to support point, range query and used Bloom filter to reduce the false positives.
- Formulated a general definition for server-centric data center topologies and employed the two-layer indexing framework to maintain a global index layer above the structured overlay.
- Validated the indexing scheme in up to 64 instances and three different data center topologies.

### MertisRL: Reinforcement Learning Assisted Data Center Routing Scheme

Dec. 2017 – June 2018

*Shanghai Jiao Tong University – Advisor: [Prof. Xiaofeng Gao](#)*

- Used Reinforcement Learning (RL) algorithm to predict future data flows before they occur and dynamically computed the optimal data flow scheduling scheme accordingly.
- Designed the RL model to balance the work load among the links and reduce network congestions in Fat-Tree data centers. Implemented the flow scheduling scheme using SDN centralized control.

### Automatic Index Tuning in HUAWEI Data Management Systems

Aug. 2018 - present

*Shanghai Jiao Tong University, HUAWEI – Advisor: [Prof. Xiaofeng Gao](#), Jun Zhao (HUAWEI)*

- Use machine learning to predict database statistics and data distribution in the storage system for Industrial & Commercial Bank of China provided by HUAWEI. Automatically reconstruct the indexes to speed up query processing.
- Investigate the learned index structures to replace the traditional B-Trees, Hash-maps, and Bloom filters.

### Software Development Tools & Android SDKs

June 2018 – Oct. 2018

*University of Waterloo – Advisor: [Prof. Meiyappan Nagappan](#)*

- Analyzed coding tools proposed in ICSE 2014-2018. Defined a criterion to classify the tools by their functions and developing scenarios, providing keyword search support for the tools in our tool repository.
- Conducted an A/B test and built a survey website to investigate the optimal mobile ads usage pattern. This test provides guidance for developers using Google Mobile Ads SDK.

## TEACHING EXPERIENCES

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[CS499](#), Mathematical Foundations of Computer Science, SJTU

Spring 2018

Teaching Assistant. Instructor: [Prof. Dominik Scheder](#)

## CONTESTS & AWARDS

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<b>Meritorious Winner</b> , Mathematical Contest in Modeling <i>twice, top 8% worldwide</i>	2017, 2018
<b>National Scholarship for Studying Abroad</b> <i>China Scholarship Council</i>	2018
<b>Chun Tsung Scholar</b> <i>50/2400 in SJTU, funded by Nobel Prize owner Tsung-Dao Lee</i>	2016
<b>SCSK Corporation Scholarship</b> <i>3/142 in department of computer science, SJTU</i>	2018
<b>YITU Scholarship</b> <i>4/142 in department of computer science, SJTU</i>	2017
<b>HUAWEI Scholarship</b> <i>7/142 in department of computer science, SJTU</i>	2017
<b>Academic Scholarship</b> <i>top 10% in SJTU</i>	2016 – 2018
<b>Cyrus Tang Scholarship</b> <i>for outstanding volunteer work</i>	2017

## SIDE PROJECTS

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### HACKxFDU 2017: Innovation Programming Hackathon

- Designed a travel route recommendation system based on road conditions, including traffic jams, bumpy roads. We won the SAIC Motor Best Project Prize (1/70), and the HACKxFDU Winning Prize (9/70).
- Used the embedded hardware to record the acceleration and velocity of the cars and uploaded to the IBM Cloud platform. Implemented our route recommendation algorithms to the abstracted weighted graph.

### Stock Investment Prediction Using Decision Tree

- Designed a decision tree model using historical statistics to predict the future trends of the stocks. Identified the important indicators for the stock market to improve the accuracy of prediction.
- Tested the prediction model in the database containing all stocks information from 2012-2018. Implemented the decision tree model to the stock trading system for user interaction.

### iBeacon Indoor Localization System

- Used iBeacon devices and the Bluetooth in users' mobile phones to locate the users waiting in the queue and estimate the remaining time.
- Designed a triangulation algorithm to improve the positioning accuracy to 1-2 meters.

### Computer System Projects

- Operating Systems: Implemented a simple Linux shell, Mutex exclusion, and Multithreaded programs.
- CPU Design in Verilog: Built a simple pipelining CPU by Verilog under MIPS architecture.

## SKILLS & SERVICES

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Online Courses: [Advanced Database Systems](#) (CMU 15-721); [Machine Learning](#) (CS229)

Programming: C/C++, Java, Python, Bash, HTML/CSS/JS, SQL

Volunteer GO game Teacher *teach the children from migrant worker families to play GO*

2015 – 2017

Emcee of Conference Banquet and Organization Staff *the 11th International Conference on Combinatorial Optimization & Applications*

Dec. 2017